IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TYLER DIVISION

HALLIBURTON ENERGY SERVICES, INC.	§	
	§	
Plaintiff	§	
	§	
v.	§	**CIVIL ACTION NO. 6:05-CV-155**
	§	**PATENT CASE**
MI, LLC.,	§	
	§	
Defendant	§	

MEMORANDUM OPINION AND ORDER

United States Patent No. 6,887,832 (the "'832 Patent") is before the Court for claim construction. Also before the Court is Defendant M-I, LLC's ("M-I") Motion for Summary Judgment of Invalidity (Docket No. 50). Having considered the parties' written and oral arguments, the Court is unable to construe the claims and therefore **GRANTS** M-I's motion for summary judgment.

BACKGROUND

Plaintiff Halliburton Energy Services, Inc.'s ("Hallburton") owns the '832 Patent, which is directed toward a method for drilling, running casing in, and/or cementing a borehole in a subterranean formation without significant loss of drilling fluid. "A drilling fluid or mud is a specifically designed fluid that is circulated through a wellbore as the wellbore is being drilled to facilitate the drilling operation." '832 Patent, col. 1:24–26. In subterranean drilling operations, fluids are circulated in a drilling wellbore for a variety of reasons, including lubricating and cooling the drill bit, removing drill cuttings from the wellbore, aiding support of the drill pipe, and providing a hydrostatic head to maintain the integrity of the well. *Id.* at 1:26–31. These drilling fluids commonly consist of a base and various additives. The base consists of water, oil, or both. Invert

emulsion-based drilling fluids are mixtures of oil and water, where water is added to an oil-base along with thinners, emulsifiers, and other agents and additives—such as organophilic clays and lignites—for control of suspension, weight, fluid loss, density, and rheology. *Id.* at 1:45–60. Invert emulsion-based fluids comprise a key segment of the drilling fluids industry. *Id*. at 1:61–62. The patented invention is directed to using invert emulsion-based drilling fluids that contain "fragile gels" or exhibit "fragile gel behavior" in drilling operations, to provide superior oil mud rheology and reduce the loss of drilling fluids during such operations. *Id*. at 11:57–65.

Claims 1 through 5 of the '832 Patent are independent claims from which the patent's other 145 claims depend. Halliburton alleges that M-I directly infringed, contributorily infringed, and induced infringement of 82 of these claims in connection with M-I's sale and/or lease of its Rheliant drilling fluids. The parties do not dispute that the term "fragile gel drilling fluid," which is found in the preambles of each of the asserted independent claims (Claims 1-3 and 5), is a limitation on all asserted claims of the '832 Patent.

The parties submitted the terms "fragile gel drilling fluid" and "fragile gel," along with other terms, to the Court for claim construction. Halliburton argues that the terms can be construed, while M-I argues that they cannot be construed. Concurrent with its claim construction briefing on the '832 Patent, M-I moved for summary judgment that the asserted claims of the '832 Patent are invalid because the term "fragile gel drilling fluid" is indefinite under 35 U.S.C. § 112, ¶ 2 and cannot be construed. Alternatively, M-I moved for summary judgment that the '832 Patent is invalid because the term "fragile gel drilling fluid" fails to meet both the enablement and written description requirements of 35 U.S.C. § 112, ¶ 1. Accordingly, both claim construction and summary judgment on invalidity are now before the Court.

APPLICABLE LAW

The Court renders summary judgment when the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue of material fact and that the movant is entitled to judgment as a matter of law. FED. R. CIV. P. 56(c); *Celotex Corp. v. Catrett*, 477 U.S. 317, 323–25 (1986); *Ragas v. Tenn. Gas Pipeline Co.*, 136 F.3d 455, 458 (5th Cir. 1998).

"It is a 'bedrock principle' of patent law that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude.'" *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Innova/Pure Water Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). In claim construction, courts examine the patent's intrinsic evidence to define the patented invention's scope. *See id.*; *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 861 (Fed. Cir. 2004); *Bell Atl. Network Servs., Inc. v. Covad Commc'ns Group, Inc.*, 262 F.3d 1258, 1267 (Fed. Cir. 2001). This intrinsic evidence includes the claims themselves, the specification, and the prosecution history. *See Phillips*, 415 F.3d at 1314; *C.R. Bard, Inc.*, 388 F.3d at 861. Courts give claim terms their ordinary and accustomed meaning as understood by one of ordinary skill in the art at the time of the invention in the context of the entire patent. *Phillips*, 415 F.3d at 1312–13; *Alloc, Inc. v. Int'l Trade Comm'n*, 342 F.3d 1361, 1368 (Fed. Cir. 2003).

The claims themselves provide substantial guidance in determining the meaning of particular claim terms. *Phillips*, 415 F.3d at 1314. First, a term's context in the asserted claim can be very instructive. *Id*. Other asserted or unasserted claims can also aid in determining the claim's meaning because claim terms are typically used consistently throughout the patent. *Id*. Differences among the claim terms can also assist in understanding a term's meaning. *Id*. For example, when a dependent claim adds a limitation to an independent claim, it is presumed that the independent claim

does not include the limitation. *Id*. at 1314–15.

"[C]laims 'must be read in view of the specification, of which they are a part.'" *Id*. (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc)). "[T]he specification 'is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.'" *Id*. (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)); *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002). This is true because a patentee may define his own terms, give a claim term a different meaning than the term would otherwise possess, or disclaim or disavow the claim scope. *Phillips*, 415 F.3d at 1316. In these situations, the inventor's lexicography governs. *Id*. Also, the specification may resolve ambiguous claim terms "where the ordinary and accustomed meaning of the words used in the claims lack sufficient clarity to permit the scope of the claim to be ascertained from the words alone." *Teleflex, Inc.*, 299 F.3d at 1325. But, "'[a]lthough the specification may aid the court in interpreting the meaning of disputed claim language, particular embodiments and examples appearing in the specification will not generally be read into the claims.'" *Comark Commc'ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998) (quoting *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1571 (Fed. Cir. 1988)); *see also Phillips*, 415 F.3d at 1323. The prosecution history is another tool to supply the proper context for claim construction because a patent applicant may also define a term in prosecuting the patent. *Home Diagnostics, Inc., v. Lifescan, Inc.*, 381 F.3d 1352, 1356 (Fed. Cir. 2004) ("As in the case of the specification, a patent applicant may define a term in prosecuting a patent.").

Although extrinsic evidence can be useful, it is "'less significant than the intrinsic record in determining the legally operative meaning of claim language.'" *Phillips*, 415 F.3d at 1317 (quoting *C.R. Bard, Inc.*, 388 F.3d at 862). Technical dictionaries and treatises may help a court understand

the underlying technology and the manner in which one skilled in the art might use claim terms, but technical dictionaries and treatises may provide definitions that are too broad or may not be indicative of how the term is used in the patent. *Id*. at 1318. Similarly, expert testimony may aid a court in understanding the underlying technology and determining the particular meaning of a term in the pertinent field, but an expert's conclusory, unsupported assertions as to a term's definition is entirely unhelpful to a court. *Id*. Generally, extrinsic evidence is "less reliable than the patent and its prosecution history in determining how to read claim terms." *Id*.

To respect a patent's presumption of validity, *see* 35 U.S.C. § 282, a court should hold a claim indefinite only after reasonable efforts at construction prove futile. *Exxon Research*, 265 F.3d at 1375. A claim is not indefinite merely because it poses a difficult issue of claim construction. *Bancorp Servs.*, 359 F.3d at 1371. "Only claims not amenable to construction or insolubly ambiguous are indefinite" and thus invalid. *Datamize*, 417 F.3d at 1347 (internal quotes omitted). If the claim's meaning is discernable, "even though the task may be formidable and the conclusion may be one over which reasonable persons will disagree," the claim is "sufficiently clear to avoid invalidity on indefiniteness grounds." *Exxon Research*, 265 F.3d at 1375. A party must show invalidity for indefiniteness by clear and convincing evidence, and close questions of indefiniteness "are properly resolved in favor of the patentee." *Datamize*, 417 F.3d at 1348; *Exxon Research*, 265 F.3d at 1380.

"FRAGILE GEL DRILLING FLUID" and "FRAGILE GEL"

The asserted claims of the '832 Patent are directed to methods and products involving fragile gel drilling fluids or drilling fluids exhibiting fragile gel behavior. Claims 1 through 3 cover methods for drilling in a subterranean formation using a fragile gel drilling fluid and Claim 5 is a composition of matter claim that covers a fragile gel drilling fluid. According to these independent

claims, the claimed fragile gel drilling fluid comprises four elements: an invert emulsion base, one or more thinners, one or more emulsifiers, and one or more weighting agents. '832 Patent, cols. 14:20–25, 29–33, 37–41, 15:30–34. With respect to the "fragile gel drilling fluid limitation," Claim 1 is representative of each of the asserted independent claims:

> 1. A method for conducting a drilling operation in a subterranean formation using a fragile gel drilling fluid comprising:
> (a) an invert emulsion base;
> (b) one or more thinners;
> (c) one or more emulsifiers; and
> (d) one or more weighting agents, wherein said operation includes running casing in a borehole.

During prosecution, the PTO initially ruled that certain prior art references "would inherently possess the properties of the present invention, since the same composition is being claimed." June 4, 2004, Non-Final Office Action Application No. 10/175,272 at 3, 4. To distinguish the invention from the prior art and rebut the PTO's findings that the prior art disclosed the claimed composition, the patentees stated that the claims are directed to and limited by "a fragile gel drilling fluid or a method of using a fragile gel drilling fluid or a drilling fluid having fragile gel characteristics." Sept. 2004 Amendment and Response to Non-Final Office Action ("Sept. 2004 Amendment") at 31. The patentees further asserted that the invention's "fragile gel characteristics . . . are not inherent [in prior art] fluids." *Id*. at 32. Therefore, the patentees relied on the fragile gel characteristics to distinguish the prior art. Accordingly, the parties do not dispute that the term "fragile gel drilling fluid," which is found in the preambles of each of the asserted independent claims (Claims 1–3 and 5), is a limitation on all asserted claims of the '832 Patent.

Halliburton argues "fragile gel drilling fluid" and "fragile gel"[1] should be construed[2] as:

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[1] "Fragile gel" appears to be used in the claims as an adjective to modify "drilling fluid." However, both Halliburton and M-I refer to "fragile gel" and "fragile gel drilling fluid" interchangeably. *See* Halliburton Opening Brief at 8–14; M-I's Responsive Brief at 7–21. Indeed, Halliburton proffers one definition for both "fragile gel" and

> a gel that easily transitions to a liquid state upon the introduction of force (e.g., when drilling starts) and returns to a gel when the force is removed (e.g., when drilling stops); the fragile gel drilling fluid, at rest, is capable of suspending drill cuttings and weighting materials. A fragile gel drilling fluid contains no organophilic clay or lignite or can contain low amounts of organophilic clay or lignite individually or in combination so that the fragile gel drilling fluid can still easily transition between a gel and liquid state and suspend drill cuttings and weighting materials.[3]

For the reasons set forth below, the Court finds that the term "fragile gel drilling fluid" cannot be construed and therefore the asserted claims are indefinite.

Any Possible Construction Of "Fragile Gel" Would Include Subjective Terms That Render the Claims Indefinite

The Court starts with the claim language in defining "fragile gel drilling fluid." The independent claims do not define a fragile gel drilling fluid other than in terms of the four basic components described above. The dependent claims add additional limitations to what the fragile gel drilling fluid is. For example, the claims dependent upon Claim 1 specify that the fragile gel drilling fluid (i) is a structure capable of suspending drill cuttings at rest and that may be immediately disrupted by movement of said fluid (Claim 9), (ii) reverts to a flowable or liquid state immediately upon resumption of drilling after a period of rest (Claim 10), and (iii) forms a structure that is capable of suspending drill cuttings at rest and that is instantaneously disruptible by movement (Claim 42). Under the doctrine of claim differentiation, there is a presumption that those limitations are not part of the independent claim. *Nazomi Commc'ns, Inc. v. Arm Holdings, PLC*, 403 F.3d 1364, 1370 (Fed. Cir. 2005); *Comark Commc'ns*, 156 F.3d at 1187.

"fragile gel drilling fluid." Halliburtion Opening Brief at 8–9. The '832 Patent also uses "fragile gel" as a noun. *See, e.g.*, '832 Patent, col. 2:5–57. Thus, there is no reason for the Court to treat those terms as different in its analysis. The meaning of "fragile gel" is integral to both terms.

[2] M-I did not offer a definition of "fragile gel" and "fragile gel drilling fluid" because M-I contends those terms are indefinite.

[3] Halliburton's Opening Claim Construction Brief, pp. 8–9 (Docket No. 98).

Turning to the specification, Halliburtion points to the specification's description of a "fragile gel" as a "starting point" in the construction of that term:

> a "gel" that is easily disrupted or thinned, and that liquifies or becomes less gel-like and more liquid-like under stress, such as caused by moving the fluid, but which quickly returns to a gel when the movement or other stress is alleviated or removed, such as when circulation of the fluid is stopped, as for example when drilling is stopped. . . . [Fragile gels] seem to break instantaneously when disturbed, reversing from a gel back into a liquid form with minimum pressure, force and time and with less pressure, force and time than known to be required to convert prior art fluids from a gel-like state into a flowable state.

'832 Patent, col. 2:26–41. Halliburton's proposed construction of fragile gel states that "it is a gel that easily transitions to a liquid state upon the introduction of force (e.g., when drilling starts) and returns to a gel when the force is removed (e.g., when drilling stops); the fragile gel drilling fluid, at rest, is capable of suspending drill cuttings and weighting materials." However, both the specification's and Halliburton's descriptions fail to define "fragile gel" and distinguish the claimed "fragile gel" from the prior art.

There must be some objective standard for the terms "easily transitions," "easily disrupted or thinned," "less gel-like," "more liquid-like," "quickly returns to a gel," "break instantaneously," and "minimum pressure, force and time" in order for the above descriptions to be a definition for the claimed term. *See Datamize*, 417 F.3d at 1350–51. Neither the specification nor any other evidence provides an objective standard for determining the scope of these amorphous terms. For instance, there is no evidence of whether skilled artisans would agree on whether "eas[e of] disrupt[ion] or thinn[ing]" is a function of force, time, or some other factor, or combination of factors. And even if skilled artisans could agree on the determining factors, there is still no evidence they would agree on a particular amount or range of force, time, etc., that would make disruption or thinning "easy" or what it means to be "easy." Similarly, although "quickly" is clearly a

reference to a temporal factor, skilled artisans may differ greatly in their opinions of what constitutes the fluid's "quick" return to gel form or "instantaneous" breaking. There is no evidence of what type or amount of force is needed to create the fluid stress that makes the fragile gel "less gel-like" or "more liquid-like." These terms' meanings—and thus the meaning of fragile gel—depend on an individual's subjective view of the drilling fluid's performance.[4] *See* Expert Report of Martin Chenevert, Exh. 4 to M-I's Responsive Brief on Claim Construction (Docket No.116). Accordingly, while the quoted passage is descriptive of fragile gels, the subjective nature of its description causes it to fail as a definition for the term. Defining "fragile gel" according to this description would be meaningless and not apprise the public of its bounds.

"Brookfield tests" and the Brookfield figures

Halliburton argues that the "Brookfield tests" mentioned in the specification and depicted in Figures 3 and 4—involving use of a device called a "Brookfield viscometer"—distinguish the claimed invention from the prior art. A Brookfield viscometer is a commercially-available instrument for measuring fluid properties, such as gel-strength and resistance to shear. The Brookfield viscometer's vanes are inserted into a sample of liquid and spun at various rates and for various durations. Torque readings at various times are plotted on a graph. Figure 3 compares gel-formation and breakage characteristics of the present invention's fluids and prior art fluids and Figure 4 compares those fluids' relative relaxation rates after exposure to stress. '832 Patent, col. 4:11–16; 5:53–6:28.

According to Halliburton, in both Brookfield graphs the specific "L-shape" of the curves

[4] Even the three deposed inventors, who have worked in the drilling fluid field for an average of 15 years, could not derive from the '832 Patent numerical or objective standards that enable measurement of a drilling fluid's fragile gel properties. *See* Burrows Dep. at 11:13–12:5, 71:2–72:21, 73:16–25, 221:17–20; Siems Dep. at 11:10–14:6, 31:14–18, 127:4–19; Carbajal Dep. at 16:3–23:15; 33:24–34:13, 244:2–15, 240:22–241:4, 242:17–243:20.

generated by samples of the invention's preferred embodiments reveal definitive fragile gel characteristics as compared to the curves generated by prior art samples, providing an intrinsic basis for distinguishing the claimed invention from the prior art. *See*, *e.g.*, Burrows Dep. at 34:10–15; Clark Rep. at 30, 78–80; Bonnecaze Rep. at 12. Figure 3 is illustrated below:

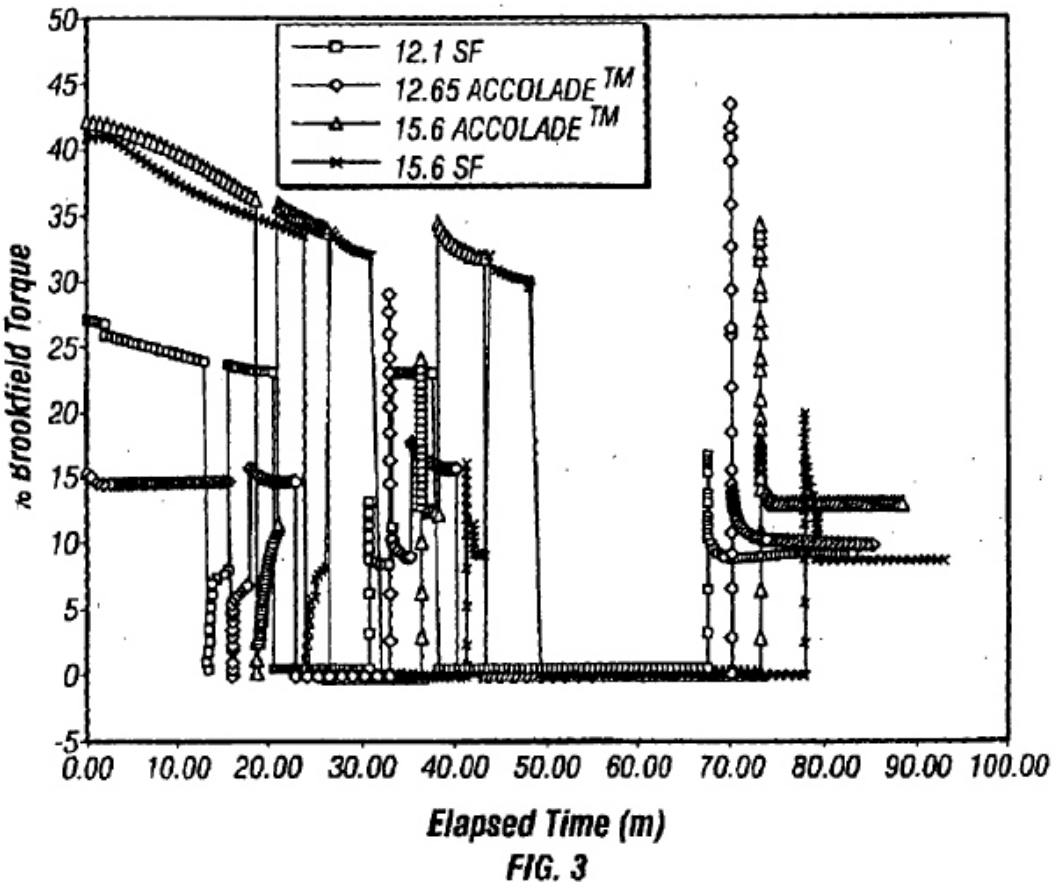

FIG. 3

The specification describes the Brookfield test results depicted in Figure 3:

> When the fluids are at rest or static . . . the curves are flat or relatively flat . . . . When shear stress is resumed . . . the curves move up straight vertically or generally vertically . . . with the height of the curve being proportional to the amount of gel formed—the higher the curve the more gel built up. The curves then fall down and level out or begin to level out, with the faster rate at which the horizontal line forms (and the closer the horizontal line approximates true horizontal) indicating the lesser resistance of the fluid to the stress and the lower the pressure required to move the fluid.

'832 Patent, col. 5:58–6:3.[5]

According to Halliburton's experts, "upon resumption of shear stress [at approximately the 70-minute mark in the Figure 3 Brookfield test], the graph [corresponding to a fragile gel] extends vertically to the point at which the gel breaks and transitions to a fluid." Docket No. 94-5 at 3 (citing Clark Rep. at 79; Report of Roger Bonnecaze ("Bonnecaze Rep.") at 12). "The graph then falls directly back upon itself to a point where it levels off to its liquid state . . . indicat[ing] that the transition from a gel to a liquid occurs quickly, immediately, and instantaneously." *Id.* The specification states that the preferred-embodiment samples build up more gel than the prior-art samples when at rest, yet break quicker when exposed to stress, indicating less resistance to shear. '832 Patent, col. 6:5–15. Halliburton contends that skilled artisans would recognize the supposedly distinctive L-shaped curves of the preferred-embodiment samples as depictions of fragile gels. Docket No. 94-5 at 20 (citing Clark Rep. at 30, 38–42, 78–80; Bonnecaze Rep. at 21); *see also* Apr. 13, 2006 Dep. of Ronald Clark ("Clark Dep.) at 324:8-14. Such curves would presumably appear in data graphs from Brookfield tests performed on all embodiments of the invention's drilling fluid.

Halliburton produces no evidence, and the Court is aware of none, to indicate precisely how high the vertical leg of a fluid's L-shaped curve must reach—i.e., how "strong" a gel must be—for that fluid to exhibit "fragile gel behavior." For instance, there is no specific numeric cutoff point for percentage torque applied, below which a fluid falls under the category of "non-fragile gel." *See* Burrows Dep. at 180:25–181:6; Siems Dep. 30:16–23, 31:14–18, 186:22–187:7. In the absence of such objective baselines, Halliburton's assertion that skilled artisans merely need to "look at the shape of the curve" to identify fragile gel characteristics is dubious. Although "a patentee need not

[5] Figure 3's vertical axis signifies the percentage of torque; the horizontal signifies elapsed time. *See* '832 Patent, Fig. 3.

define his invention with mathematical precision to satisfy the definiteness requirement," there must be some "objective anchor" by which skilled artisans can identify whether they are practicing the patented invention. *See Datamize*, 417 F.3d at 1350; *see also Oakley, Inc. v. Sunglass Hut Int'l*, 316 F.3d 1331, 1341 (Fed. Cir. 2003).

Halliburton's inventors indicate that skilled artisans can do this by visually comparing the graphed results of Brookfield tests on different fluid samples. *See* Burrows Dep. at 180:1–6. As a preliminary matter, however, it is unclear from the specification's description of Figure 3 precisely what distinguishes the curves of the two preferred-embodiment samples (Accolade) from the curves of the two prior-art samples (Petrofree SF). The vertices connecting the legs of the curves are not significantly sharper for the Accolade-sample curves than for the curve of at least one of the Petrofree SF-samples. The Petrofree SF sample's curve assumes the same distinctive L-shape as the Accolade-sample's curves. All three curves "fall back on themselves." Thus, despite the specification's and Halliburton's experts' assertions, Figure 3 reveals no difference in the amount of time necessary to change the Accolade and Petrofree SF from gel to liquid form.

The only apparent aspect that distinguishes Figure 3's Accolade curves is that those curves' vertical legs—which apparently indicate gel strength at the time force is reapplied—peak higher than do the Petrofree SF curves' vertical legs. Clark Dep. at 141:21–142:18. But there is no definitive evidence that this aspect of the preferred-embodiment fluid's curves is attributable to that fluid's inherent characteristics. Halliburton's scientists conducting the Brookfield tests on which the Figure 3 results are based used a proprietary modified viscometer not available to the general public. Siems Dep. 28:4–23; 160:7–161:1. The device has a proprietary test programming sequence that includes specific changes in temperatures, rotation periods, and rotation speeds, and uses a uniquely-shaped six-finned vane. Burrows Dep. at 32:20–33:20; Siems Dep. at 160:7–164:2;

Carbajal Dep. at 40:4, 41:7. But the '832 Patent does not disclose that these results come from usage of the modified viscometer, nor is there any other intrinsic evidence indicating the type of machine used or whether speeds, temperatures, and periods were applied consistently to different fluids.

Halliburton contends that the differences between the preferred embodiment fluids and prior art fluids would be apparent regardless of vane geometry. However, Halliburton's expert admits that differences in vane geometry affect curve peak height in Brookfield tests. *See* Clark Dep. at 113:21–114:3. A recent Halliburton Brookfield test—in which both the modified six-finned vane and an unmodified vane were applied to the same Accolade sample at the same speeds—revealed curve peaks that varied as much as about 53%. Report of Jeff Miller ("Miller Rep."), Exhibit B. Meanwhile, the difference between the lowest Accolade peak and the highest Petrofree SF peak in Figure 3 is about 57%. Halliburton's own evidence shows that simple modifications to the vane's shape can make the Brookfield test curves of a preferred-embodiment fluid *vary* in peak height the same way (and to nearly the same extent) in which that fluid's curves and prior-art fluid's curves supposedly *differ* in peak height.

Additionally, Halliburton's expert, Dr. Roger Bonnecaze, confirms that by adjusting the vane rotation speed, one can manipulate the torque readings and thus the curve peak height. Bonnecaze Rep. at 14. One of the named inventors, Donald Siems, likewise admitted that adjustments in temperature could also alter the fluids' properties. Siems Dep. at 163:16–164:10.

By adjusting vane geometry, rotation speed, and temperature, one can substantially affect the peak heights of Brookfield test curves independently of the type of fluid being tested. Because the '832 Patent did not adequately disclose the geometry, speed, and temperature parameters surrounding the Figure 3 Brookfield tests, skilled artisans cannot duplicate those parameters. *See*

Honeywell Int'l, Inc. v. Intl'l Trade Comm'n, 341 F.3d 1332, 1339–41 (Fed. Cir. 2003) (finding a patent's failure to disclose test parameters and method rendered claims indefinite because it was impossible to duplicate test results on which claims were based). There is no evidence to verify that the one apparent consistent difference between the preferred-embodiment samples and the prior art samples depicted in Figure 3 is attributable to inherent differences in the fluids' characteristics.

Halliburton also contends that M-I ignores the differences between the Accolade and Petrofree SF fluids depicted in Figure 4. Figure 4 is illustrated below:

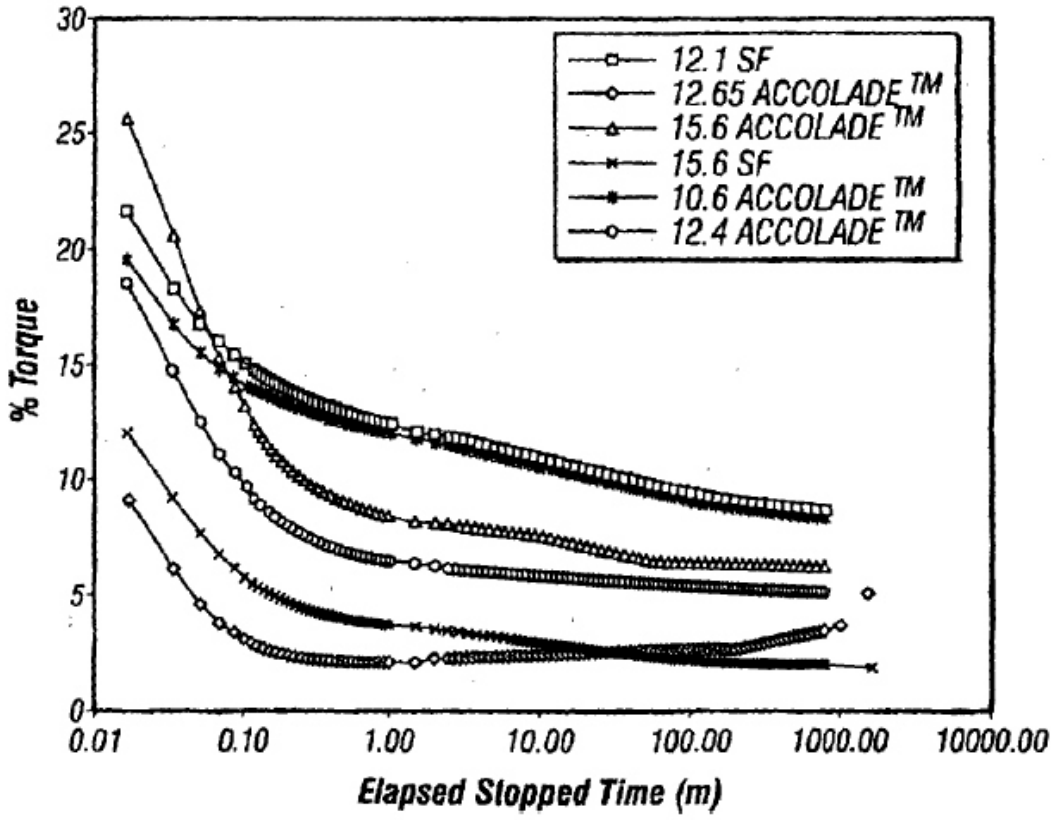

FIG. 4

The specification describes the Figure 4 test results:

The time required for the fluids to relax or to return to their pre-stressed state is

> recorded. The curves for the fluids of the invention seem to level out over time whereas the prior art fluids continue to decline. The leveling out of the curves are believed to indicate that the fluids are returning to a true gel or gel-like structure.

'832 Patent, col. 6:23–29. Halliburton again insists that "the 'L' shaped curve is, in reality, all that is necessary to determine whether a drilling fluid is a 'fragile gel drilling fluid.'"[6] However, this cannot be so. Even cursory examination of Figure 4 shows that the L-shaped curve corresponding to one of the Accolade samples (10.6 Accolade) levels off in precisely the same shape as a curve corresponding to one of the Petrofree SF samples (12.1 SF) and at precisely the same torque level. Two other L-shaped Accolade sample curves (15.6 Accolade and 12.4 Accolade) level off at what appears to be the same rate as another L-shaped Petrofree SF (15.6 SF) sample curve. Finally, the curve of 12.65 Accolade does not even appear to level off.

There is no genuine issue of material fact that the "shape of the curves" depicted in Brookfield graphs provide a purely subjective means of identifying whether a fluid exhibits fragile gel behavior. Halliburton argues that, under *Datamize*, such pure subjectivity does not necessarily render the "shape of the curve" criteria inappropriate and result in indefiniteness. *See Datamize*, 417 F.3d at 1351 ("[W]hen faced with a purely subjective phrase like 'aesthetically pleasing,' a court must determine whether the patent's specification supplies some standard for measuring the scope of the phrase."). *Datamize* makes clear that adequate support in the specification can make a purely subjective *claim term* definite. However, when, as here, the specification provides only a subjective definition for a subjective claim term, there is no "objective anchor" by which skilled artisans can identify the bounds of the claims. *Id.* at 1350; *see Vitronics*, 90 F.3d at 1584 (finding inventor's subjective intent as to claim scope, unexpressed in the patent documents, is ineffective).

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[6] Halliburton's Sur-Rreply at 17 (Docket No. 129).

A skilled artisan cannot verify merely from the "shape of the curve" the bounds of the fragile gel claimed in the '832 Patent. Neither the specification, nor any other intrinsic or extrinsic source identify an alternative way to discern from the Brookfield tests whether a fluid exhibits fragile gel behavior. Therefore, the Brookfield tests do not provide the asserted claims sufficient definiteness.

Other figures in the specification

In addition to Figures 3 and 4, Figures 1A, 1B, 1C, 2, 5, and 10 and Tables 1 and 3[7] all compare properties of preferred-embodiment fluids and prior art fluids, but none of these figures or tables permit skilled artisans to discern inherent characteristics of the asserted fragile gel drilling fluid. The figures merely compare the effects that preferred-embodiment fluids and prior-art fluids have on certain drilling operations. Figures 1A, 1B, 1C, and 2 compare mud losses incurred during drilling and indicate that use of Accolade samples resulted in loss of less drilling mud than use of prior art samples. *See* '832 Patent, cols. 3:66–4:5, 4:63–5:51. The figures illustrate a benefit of using the invention over the prior art, but do not shed light on the characteristics that supposedly make Accolade a fragile gel drilling fluid.

Figure 5 compares the differences in fluid density at certain points in comparable wells ("ECDs") when either Accolade or Petrofree SF is used. *See id.* at cols. 4:16–21, 6:48–67. Again, though the fluid-density differences are less for both samples of Accolade than for the Petrofree SF sample, there is no evidence that the differences are attributable to fragile gel behavior or other factors such as greater viscoelasticity. *See id.* at col. 4:30–36.

Figure 10 compares the viscosity of preferred-embodiment samples and prior art samples. *See id.* at cols. 4:45–48, 9:10–14. The specification asserts that "[t]he base fluid for the drilling fluid

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[7] The Court notes that the patentees pointed to these figures and tables, in addition to figures 3 and 4, during the prosecution of the '832 Patent. Sept. 2004 Amendment at 31. However, there was no specific discussion of how those figures and tables distinguished the claimed invention from the prior art.

of the present invention is one of the thickest or most viscous." *Id.* at col. 9:13–14. However, this fact does not distinguish the prior-art fluids because Figure 10 shows that one Petrofree sample was even more viscous than the Accolade sample and does not correlate them to the alleged differences in ECDs.

Like Figure 5, Table 1 merely compares ECDs that occur among preferred-embodiment and prior-art fluids. *Id.* at cols. 7:1–25, 6:48–67. Finally, Table 3 illustrates how a preferred-embodiment fluid is capable of functioning without addition of organophilic clays or lignites. *Id.* at cols. 11:16–66, 10:62–11:15. But, as noted earlier, the invention's fragile gel properties supposedly exist independent of whether it contains such additives.

Neither the figures or tables shed any light on what makes the present invention a "fragile gel drilling fluid."

Organophilic clay or lignite

The Court next turns to the portion of Halliburton's proposed definition that adds the requirement that a fragile gel drilling fluid contain no or low amounts of organophilic clay or lignite. The Court finds no basis to import that limitation into the definition of a fragile gel drilling fluid. That limitation is imported from a preferred embodiment and is not properly part of the claim construction. The specification describes "the drilling fluid of the present invention['s]" ability to "suspend drill cuttings and weighting materials for delivery to the well surface . . . . through its gel or gel-like characteristics, without need for organophilic clays to add viscosity to the fluid." *See* '832 Patent, col. 2:43–51. The specification also describes a method for preparing an invert emulsion drilling fluid "that forms fragile gels or that has fragile gel behavior, preferably without the addition of organophilic clays or organophilic lignites." The specification states that "[t]he invert emulsion drilling fluid of the present invention preferably does not have added to it any

organophilic clays . . . [and] does not need organophilic clay or organophilic lignites to provide it needed viscosity, suspension characteristics, or filtration control to carry drill cuttings to the well surface." *Id.* at 3:19–25; 13:66–14:4.

This asserted limitation of no organophilic clay belongs to a group of preferred-embodiment descriptions that the Court cannot read into the claims, absent clear disclaimer or disavowal of the broader scope encompassed by the claim language. *See Phillips*, 415 F.3d at 1316; *Liebel-Flarsheim Co. v. Medrad*, *Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004); *Comark Commc'ns*, 156 F.3d at 1187; *see also* '832 Patent, col. 14:11–15 (stating that descriptions of the invention are intended as descriptions of preferred embodiments). There is no evidence of a clear disclaimer or disavowal, nor is there evidence that skilled artisans would import the additional limitation of the specification's preferred embodiments into the asserted claims. The limitation of no added organophilic clays or lignites is not required by the specification. Instead, the specification states that the "drilling fluid is obtained or prepared . . . *preferably* without the addition of organophilic clays or organophilic lignites" and "the present invention *preferably* does not have added to it any organophilic clays." *See* '832 Patent, cols. 3:19–25, 13:66–67 (emphasis added). Thus, such a limitation may be characteristic of a preferred embodiment, but it is clearly not required by the specification, and the Court cannot rewrite a claim to make it more definite. *See Nova Indus., L.P. v. Micro Molds Corp.*, 350 F.3d 1348, 1354–57 (Fed. Cir. 2003).

Moreover, Halliburton's arguments fail to overcome the presumption of the doctrine of claim differentiation, under which a limitation found in a dependent claim is presumed to not belong to the independent claim because each claim is presumed to have a different scope. *Nazomi Commc'ns*, 403 F.3d at 1370; *Comark Commc'ns*, 156 F.3d at 1187. Numerous dependent claims in the '832 Patent add the limitation of a drilling fluid that forms a structure capable of suspending

drill cuttings at rest and that is instantaneously disruptible by movement. '832 Patent, cols.16:27–29 (Claim 9), 18:31–33 (Claim 42), 19:28–30 (Claim 47), 21:32–34 (Claim 80), 22:28–30 (Claim 85); 24:31–33 (Claim 117), 26:8–11 (Claim 121). Each of the asserted independent claims has dependent claims that add the limitation "wherein said drilling fluid is substantially free of organophilic clay," or "does not require organophilic clays to provide filtration control." *Id.* at cols. 16:57–58 (Claim 20, dependent on Claim 1), 16:61–62 (Claim 22, indirectly dependent on Claim 1), 19:58–59 (Claim 58, dependent on Claim 2), 19:62–64 (Claim 60, indirectly dependent on Claim 2), 22:57–58 (Claim 95, dependent on Claim 3), 22:61–62 (Claim 97, dependent on Claim 3), 26:20–24 (Claims 125 and 126, dependent on Claim 5). Halliburton's own expert witness, Dr. Ronald Clark, relied on dependent claim 20 for the "substantially free of organic clay" limitation in opining that those of ordinary skill in the art would adopt Halliburton's definition. *See* Expert Report of Ronald Clark ("Clark Rep.") at 40.[8] The dependent claims are meaningless if, as Halliburton suggests, a fragile gel drilling fluid must contain no or low amounts of organophilic clays. The doctrine of claim differentiation prohibits such an interpretation absent strong evidence that the patentees intended to narrow the independent claims' scope. *See Liebel-Flarsheim*, 358 F.3d at 910.

Further, nothing in the prosecution history of the '832 Patent that was brought to the Court's attention indicates that the lack of organophilic clay should be a part of the definition. As discussed

[8] Halliburton argues that Dr. Clark merely stated his opinion that the dependent claims describe fragile-gel-drilling-fluid characteristics and did not take the position that Halliburton's definition requires importing the dependent claims' limitations. *See* Docket No. 125 at 13. However, Dr. Clark's report states that "[s]everal of the dependent claims expressly teach the fragile gel properties," that "Claim 9 teaches that the claimed fragile gel drilling fluid is 'capable of suspending drill cuttings at rest and . . . may be immediately disrupted by movement,'" that "[C]laim 20 teaches that the fragile gel drilling fluid is 'substantially free of organophilic clay,'" and that skilled artisans would "*therefore* understand that . . . 'fragile gel drilling fluid' would have [Halliburton's proposed construction]." Clark Rep. at 40 (emphasis added). Dr. Clark clearly relied on these dependent claims for adopting Halliburton's definition.

above, to distinguish the invention from the prior art and rebut the PTO's findings that the prior art disclosed the claimed composition, the patentees stated that the claims are directed to and limited by "a fragile gel drilling fluid or a method of using a fragile gel drilling fluid or a drilling fluid having fragile gel characteristics." Sept. 2004 Amendment at 31. The patentees pointed to several figures and tables in the specification to show those allegedly distinguishing characteristics. At no time did the patentees refer to the organophlic clay limitation as distinguishing the claimed invention from the prior art. The Court will not now add that limitation to the definition of fragile gel drilling fluid without some clear basis to do so.

CONCLUSION

For the foregoing reasons, the asserted claims, i.e. independent Claims 1, 2, 3 and 5 and related dependent claims, are invalid as a matter of law because they are indefinite. The Court is unable to construe "fragile gel drilling fluid" or "fragile gel" such that those terms would have a meaning that is not purely subjective. Accordingly, the Court **GRANTS** M-I's Motion for Summary Judgment of Invalidity based on indefiniteness. Because the Court has found that the asserted claims of the '832 Patent are indefinite, it is unnecessary to address M-I's allegations of invalidity based on non-enablement or inadequate written description. All other pending motions are **DENIED** as moot.

So ORDERED and SIGNED this 18th day of October, 2006.

LEONARD DAVIS
UNITED STATES DISTRICT JUDGE